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Notice of Allowability	Application No.	Applicant(s)	
	10/621,595	MURRAY ET AL.	
	Examiner	Art Unit	
	Christine Sung	2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--
 All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1. ☒ This communication is responsive to 5/10/06.
- 2. ☒ The allowed claim(s) is/are 1,3-8,10,11,13-16 and 18-22.
- 3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 - 1. ☐ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

- 4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 - 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

Response to Amendment

1. The amendment filed on April 28, 2006 has been accepted and entered.
2. The request for continued examination filed on April 28, 2006 has been accepted and entered.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Albert Fasulo on June 9, 2006.

The application has been amended as follows:

Claim 5 now reads:

The system of claim 1 wherein the neutron absorber component of the cocktail mixture consists of LiBF_4 .

Claim 6 now reads :

The system of claim 1 wherein the neutron absorber component of the cocktail mixture consists of LiCl .

Claim 7 now reads:

The system of claim 1 wherein the neutron absorber component of the cocktail mixture consists of NaBF_4 .

Claim 8 now reads:

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The system of claim 1, wherein the liquid scintillator component of the cocktail mixture is comprised of a tri complex of 2,6 pyridine dicarboxylic acid (dipicolinic acid) $\text{Li}_3[\text{Eu}(\text{DPA})_3]$.

Claim 13 now reads:

The system of claim 1 wherein the neutron absorber component of the cocktail mixture consists of LiBF_4 .

Claim 14 now reads :

The system of claim 1 wherein the neutron absorber component of the cocktail mixture consists of LiCl .

Claim 15 now reads:

The system of claim 1 wherein the neutron absorber component of the cocktail mixture consists of NaBF_4 .

Claim 16 now reads:

The system of claim 1, wherein the liquid scintillator component of the cocktail mixture is comprised of a tri complex of 2,6 pyridine dicarboxylic acid (dipicolinic acid) $\text{Li}_3[\text{Eu}(\text{DPA})_3]$.

Allowable Subject Matter

4. Claims 1, 3-8, 10-11, 13-16, and 18-22 are allowed.
5. The following is an examiner's statement of reasons for allowance:

Regarding claims 1, 3-8, 10 and 19-20, none of the prior art of record specifies a system for detecting neutron radiation, namely the specific liquid cocktail mixture that contains a neutron absorber that consists of either LiBF_4 or LiCl or NaBF_4 , dissolved in water and a liquid scintillator where the liquid scintillator is a rare chelate wavelength shifter, along with the other claimed elements. References such as Tarkkanen (cited in previous office actions) disclose

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dissolving a scintillator and a neutron absorber in water, but do not specify the rare chelate wavelength shifter of the liquid scintillator as claimed nor discloses dissolving the particular neutron absorbers. Although the claimed types of liquid scintillator and neutron absorbers are known, none of the prior art of record specifies the combination of the elements to form the specific liquid cocktail mixture as claimed. As applicant has pointed out, the combination provides an improvement over the prior art because it provides a non-toxic cocktail that does not require other additives to enhance miscibility with water.

Regarding claims 11, 13-16, 18 and 21-22, none of the prior art of record specifies the specific liquid cocktail mixture that contains a neutron absorber that consists of either LiBF_4 or LiCl or NaBF_4 , dissolved in water and a liquid scintillator where the liquid scintillator is a rare chelate wavelength shifter, along with the other claimed elements. References such as Tarkkanen (cited in previous office actions) disclose dissolving a scintillator and a neutron absorber in water, but do not specify the rare chelate wavelength shifter of the liquid scintillator as claimed nor discloses dissolving the particular neutron absorbers. Although the claimed types of liquid scintillator and neutron absorbers are known, none of the prior art of record specifies the combination of the elements to form the specific liquid cocktail mixture as claimed. As applicant has pointed out, the combination provides an improvement over the prior art because it provides a non-toxic cocktail that does not require other additives to enhance miscibility with water.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christine Sung whose telephone number is 571-272-2448. The examiner can normally be reached on Monday- Friday 7-3 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CS

Christine Sung
Examiner
Art Unit 2884


OTILIA GABOR
PRIMARY EXAMINER